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National Goals and Human Resources Development

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FOREWORD

To engage in an examination of human resource development leaves one with a vast expanse over which to range. This can extend from the barren wasteland of the undeveloped and underdeveloped human resource which has, for all practical purposes, been excluded from our economic society to the most brilliant and incisive minds of our time. Primary concern in the present instance is the one-fifth at the lower and the one-fifth at the upper end of the educational scale. The problem of reclamation and development of this resource is one of huge proportions.

Distinguished colleagues who have participated in this series of lectures have been concerned with resource development and utilization. My brother, Dr. O. W. Irsaelsen, who gave the second honor lecture in the series, explored the vast importance of water resource development in arid regions. Others have been concerned with various aspects of human and natural resource development. Each of these represents a significant contribution to our knowledge and understanding.

Sober second thoughts have raised serious questions in the mind of the writer as to his competence to engage in so bold an undertaking. The following pages may provide eloquent testimony as to how serious were these limitations. If, however, the present endeavor can induce some new thoughts on ancient problems, it will have achieved its purpose. The works and contributions of many have necessarily been drawn upon. To colleagues and associates who have contributed ideas, the writer expresses deep appreciation. But to none of these should be attributed any shortcomings herein.

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INTRODUCTION

During this year the United States will reach a population of 200 million persons. In materials things it is, by a wide margin, the richest nation on earth. With approximately 6 to 7 percent of the World's population it will produce at least one-third of the world's goods and services. Measured from almost any quantifiable category or criteria, it ranks first. In per capita income we are substantially above our nearest competitor. The gross national product in 1966 was $3770 per person. We could, on any afternoon, take the entire population for an automobile ride and have everyone sit in the *front* seat. By using the back seat also, and with not more than 5 persons per car, we could include the population of Canada, France, Great Britian and Germany. This is a feat that could not be even remotely approximated in any other nation. Of automobiles, color television sets, tele,-phones, private boats, yachts, private swimming pools, gadgetry and bathtubs, we have the most.

Along another avenue we also have the most. We have the most families broken by divorce, the most juvenile delinquency, the most crime in almost every category. No nation can match us in the rate of growth in crime. No nation remotely approaches us in the cost of crime. The rate of increase in crime is more than double the rate of population increase. We have the most carnage and death on our highways.

Ours is the largest navy, the most powerful air force, the best-equipped army, the greatest military might. We have the largest arsenal of death dealing devices ever at the disposal of a nation.

For those deeply concerned with human values, human worth and dignity, the above facts pose questions of vast proportions. As custodians of the world's greatest wealth, its most productive economic system, its most concentrated military might and its highest standard of living, what use is to be made of this awesome potential for good or for evil. Can we, as a nation, with deep sincerity of purpose and unalterable conviction move forward to develop that wisdom and nobility of spirit to match our incomparable achievements in the material realm? Can we resolve the challenge of crime in a free society? Can we, with resolution, responsibility, and compassion move forward to bring the "good life" within reach of all of our citizens regardless of race or color? Are we willing to open the door of opportunity to those on whom it has been slammed shut or to whom it has never been opened? These appear to be questions which are pressing ever more insistently and urgently for answers.

THE PLACE OF THE INDIVIDUAL

In a free society, there is a wide concensus that the value, the worth, the preservation, the dignity, and the full realization of self for the individual is paramount to all other considerations. President Eisenhower, during his second term, appointed a committee of distinguished citizens to study and report on national goals. The group was nonpartisan, broadly representative, and entirely privately financed. It was administered by the American Assembly, Columbia University. Their report was published under the title *Goals for Americans.* (New Jersey, Prentice Hall, 1960)

Fifteen goals are enumerated. First and highest priority is that of individual rights together with the attainment and enjoyment of human dignity and full self realization. Next follows the goals of equality and freedom from discrimination in all of its

forms. Any deprivation of individual rights for any class or group in society must be regarded as economically wasteful, morally wrong and filled with potential danger for all. In theory, at least, there is general agreement that human rights must take precedence over property rights. But evidences abound that the sense of values as between persons on the one hand and property on the other often becomes warped and distorted.

To what extent have these top priority goals as formulated by the Commission actually been implemented and woven into our social fabric? Are these expressions of the paramount worth and dignity of persons guide posts in our day to day relations or are they platitudes which have a pleasant sound but slight meaning in social practice?

It will be the objective of this lecture to do three principal things. First, after a brief exploration of one of our most obstinate problems, that of unemployment, attention will be directed to the persistent problem of poverty in America. Second, it will examine expenditures for education as investment in human beings and compare that type of investment with commitments made in physical capital. Thirdly, consideration will be given to the role of the university in its development of the human resource and to unresolved problems confronting the affluent society.

THE MEANING OF HUMAN RESOURCE DEVELOPMENT AND ECONOMIC GOALS

As used here, human resource development shall be construed to mean any acquisition of knowledge, skill, technique, or capability on the part of the individual which will enhance his or her productivity either in quantity or quality of product or in the rendition of service. A correlative would, of course, be a condition of health and physical well being. Absence of these usually impair productivity. These attainments lend themselves to at least a rough quantitative measurement in an economic sense. They can be, and are, priced in the market place. There are numerous qualitative areas of human development which have great social, cultural, spiritual, moral, and esthetic value.

These latter qualities add enrichment and meaning and purpose to living and in the grand scale of values may be more important than the economic. In our society, however, their full enjoyment is impossible if elemental economic needs are unsatisfied.

To achieve human resource development, society has developed a vast array of institutions: educational, economic, social, and others. Deeply involved in this developmental process is the system of public and private educational institutions from the kindergarten through the graduate school. Supplementing the school program is vocational training and retraining, on-the-job training, apprenticeship training, and intern service. Much of the training given and skills acquired in the armed services have civilian application once the trainee returns to civilian life.

In all of its ramifications, the knowledge industry has become one of the leading industries in the nation. Notwithstanding this, millions of our citizens find themselves either functionally illiterate or with no marketable skill by which they can contribute to the economic process. They are, in effect, "economic rejects," declared surplus in our economic society. This is equivalent to saying to the man "there is nothing in you for which society has any need. You are outside our system." In these instances, not only is production foregone, but worse, human lives are wasted. If, in addition, these rejects develop anti-social behavior, they become a definite menace to the social order.

FULL EMPLOYMENT

As a condition of national well-being the goal of full employment is regarded as of paramount importance. Full utilization of the nation's manpower is required for economic growth, for a rising standard of living, and for the attainment of other vital national objectives both domestic and foreign. This goal received formal expression as a national policy in the Employment Act of 1946. When can full employment be said to exist? A widely used guidepost is that when 96 percent of all those between the ages of 14 and 65 who are able, willing to work, and seeking work actually have employment, full employment has been attained. This would constitute an unemployed reservoir

of workers of 4 percent of the labor force. It is customary to attribute this volume of unemployment to frictional, seasonal, and technological factors. Arthur M. Ross, Commissioner of Labor Statistics of the U.S. Department of Labor, is unwilling to accept a 4 percent level of unemployment. In May 1966, he made the observation that "while the current, overall unemployment rate is 3.7 percent, we have estimated that a full employment rate would be in the range of 2 to 2.5 percent." (Theory and Measurement of Labor Shortages, paper delivered before *Manpower Symposium,* Princeton University, Princeton, New Jersey, May 12, 1966, p. 14.)

The only time the unemployment rate has been reduced below 4 percent has been in periods of extreme crisis or war. From 1950 through 1965, there were only three years, 1951, 1952, and 1953, during the Korean War when the unemployment rate fell below 4 percent. During these three war years, the rate averaged approximately 3 percent unemployed. If the 2 to 2.5 percent is regarded as a realistic and achieveable level, then the average number of excess unemployed for the years 1950 through 1965 was 1,728,000. This would be equivalent to pushing into total idleness slightly more than 4.6 times the entire labor force in the state of Utah. If the 4 percent level of unemployment is accepted, the average excess unemployed, 1950 through 1965, was 939,000. This number was almost 2.5 times the Utah labor force as of the end of 1965. The years 1958 through 1965 were particularly adverse in the high level of unemployment which persisted through the entire period. In January 1966, due entirely to growing hostilities in Vietnam, the rate was reduced to 4 percent for the first time since the Korean War.

If one accepts the higher, 4 percent level of unemployment as tolerable, it still means that more than 15 million man years of production were irretrievably lost during this sixteen-year period. Assuming forty years of work in a normal life span, this represented the total wastage of 375,000 lives. This was about

5,000 more than the Utah labor force in 1965. These facts provide convincing evidence that the Full Employment Act of 1946 has not yet succeeded in achieving the national goal established therein.

THE UNEMPLOYED

Who are the unemployed? Broadly, the unemployed are the untrained, the unskilled, the person with low educational attainment and perhaps low initiative and this includes the school dropout. A widespread reason for unemployment is racial discrimination. Of all personal factors which contribute to unemployment, educational deficiencies are the leading cause.

The highest incidence of unemployment occurs among the teenage group. Within this group, the problem is most acute with the dropout — those with least schooling. In a normal labor market, the prospective employer places considerable emphasis on education and work experience. The dropout has neither.

If the present rate continues, there will be 8 million high school dropouts during the 1960's (*Manpower Report,* 1966, XXVI). This number will comprise about 10 percent of the labor force in 1970. With the persistent general level of training in the labor force rising, the dropout will find himself at an ever-increasing disadvantage in job competition. This fact, combined with the additional fact that he is, on the average, possessed of lower native ability and initiative, seriously compounds his problem.

Second only to the teenager in difficulty of job placement and retention are the non-whites of whom the Negro constitutes the vast majority. In the tight labor market of November 1966, for example, teenagers (ages 14 to 19) had an 11 percent unemployment rate compared with 7.4 percent for non-white workers. This was more than double the 3.2 percent rate for white workers. (*News*, U.S. Department of Labor — 8044, Dec. 23, 1966, p. 3)

Educational deficiencies are reflected in the low employment status of the Negro. However, the Negro is confronted with the additional handicap of racial discrimination.

President Kennedy declared in 1963 that our number one national problem was that of unemployment. His estimate was that unemployment and underutilization of human and physical resources was costing the nation $30 to $40 billion annually. Even more serious than the economic waste and retarded economic growth was the wastage of human lives (*Manpower Report,* 1963, p. XI). For comparative purposes, it may be noted that total expenditures for all education, public and private, in 1962-63 was $32.7 billion. (U.S. Office of Education, *Projections of Educational Statistics to 1974-75,* 1965 edition, p. 44). An important question: Can the nation afford the enormous cost of wasted human resources represented by unemployment? Much of this waste is both a result and a cause of poverty to which attention is now directed.

POVERTY AND THE HUMAN RESOURCE

In his "State of the Union Message" in January 1964, President Johnson made this declaration, "This administration here and now declares unconditional war on poverty in America. I ask this Congress and all Americans to join with me in that effort. It will not be a short or easy struggle . . . but we shall not rest until that war is won. We cannot afford to lose it, $1,000 invested in salvaging an unemployable youth today can return $40,000 or more in his lifetime.

"Poverty is a national problem, requiring improved national organization and support. But this attack, to be effective, must be organized at the state and local level and supported and directed by state and local efforts . . . Our chief weapons in a more pinpointed attack will be better schools, better health, better homes, better training and better job opportunities to help more Americans — especially young Americans — escape from squalor and misery . . . Whatever the cause, our joint federal-local effort must pursue poverty wherever it exists. . . .

"In city slums and small towns, in sharecropper shacks, in migrant worker camps, and on Indian reservations, among whites

as well as Negroes . . . Our aim is not only to relieve the symptoms of poverty but to cure it — and, above all, to prevent it."

This is truly a humanitarian war. Coordinate with the war on poverty, it is a war on ignorance, disease, crime, squalor and despair, man's ancient enemies. Note should be taken of the weapons used, five "betters": better schools, health, homes, training and opportunities. It would seem appropriate to add this great aspiration to the goals previously cited.

POVERTY IN OUR SOCIETY

Intelligent and informed opinion and decision making is impossible without a knowledge of basic facts. What then are pertinent facts relating to poverty? Since a war has been declared, it is essential to establish a workable definition of poverty in order to delineate the area of battle. Poverty may be defined as the inability on the part of the family or of the individual to provide for its minimum, essential needs out of current income and/or accumulated assets. To assess the extent of poverty in the American economy and to measure efforts in its elimination or correction, it is necessary to set up some strictly quantitative measurements for the determination of where the poverty line falls. In 1965, the Social Security Administration developed the definition of poverty which is now widely applied. This new poverty-income definition is based on a minimum nutritionally sound food plan designed by the Department of Agriculture for "temporary or emergency use when funds are low." Food costs in this plan are used to determine the minimum total income requirements for families of different sizes. Budget levels for farm families are reduced by 30 percent to allow for lower cash expenditures required where home-grown food is available and to recognize the lower cost of farm housing. Through this method, the poverty line for non-farm individuals was fixed at $1,540 and for farm individuals $1,080. Four-person families were defined as poor if their money income was below $3,130. For farm families of this size, the poverty line was $2,190. These prices were adjusted to give recognition to the price increases that had occurred between the 1959 and the 1964 period. At today's prices,

there can be little question but families with incomes of this magnitude are indeed poor (*Economic Report of the President,* 1966, p. 111).

Using these criteria, there were 11,900,000 poor families in 1964, this represented 19.8 percent of all families. An official estimate places the number who live in daily deprivation at 50 million. This group would include from 21 to 31 percent of the nation's children. The incidence of poverty is about 2½ times as great among non-white as among white families. In 1964, 17.1 percent of all white families were classified as poor, whereas for non-white the figure was 43.1 percent of all families. In the 5-year period, 1959 to 1964, there was no relative change in the number of poor white and non-white families.

Public policy must recognize that there are large numbers of individuals whose conditions are not amenable to change. The elderly, the physically and the mentally handicapped, and others whose situation, because of personal shortcomings, may not be amenable to corrective action must continue to receive support at public expense. The social conscience of the nation and humanitarian considerations demand this.

A study in 1964 attempts to delineate the principal causes of poverty. In first rank was deficient education. High on the list is families with a female head, a situation frequently created by divorce or desertion. Excessive unemployment which stems from low education is a common characteristic. (Leon H. Keyserling, *Progress or Poverty,* Conference on Economic Progress, Washington, D.C., Dec. 1964., Ch. IV).

Table 1 presents information on the characteristics of the poor in relation to age and educational attainment. A low level of education is associated with a high incidence of poverty. In more than three out of every five families who were classified as poor in 1962 the family head had an educational attainment of 8 years or less. The chances of being poor for families in this category were 4 times as great as for families whose head had completed high school, and about 9 times as great as for the family whose head had more than 12 years of schooling.

Table 1. Selected characteristics of all families and of poor families, 1962

Selected characteristic	Number of families (millions)		Percentage of total	
	All families	Poor families	All families	Poor families
Total	47.0	9.3	100	100
Age of head:				
14 - 24 years	2.5	.8	5	8
25 - 54 years	30.4	3.9	65	42
55 - 64 years	7.3	1.4	16	15
65 years or over	6.8	3.2	14	34
Education of head: *				
8 years or less	16.3	6.0	35	61
9 - 11 years	8.6	1.7	19	17
12 years	12.2	1.5	26	15
More than 12 years	9.3	.7	20	7

* Based on 1961 income (1962 prices)
Source: **The Economics of Poverty**, Burton A. Weisbrod, ed. (New Jersey: Prentice-Hall, Inc., 1965, p. 71.) Used by permission of publisher.

In his study titled *Poverty Amid Affluence,* Oscar Ornati (New York: Twentieth Century Fund, 1966, p. 63) found the dropout rate consistently highest where poverty was the most concentrated. The same researcher found the most prevalent reason for youths leaving school was the home environment and particularly the educational level of their fathers. A University of Michigan Survey Research Center study cited by Ornati (p. 67) found that the low educational level of the father was the most powerful predictor of low income for the son. If this is a valid conclusion, then the twin evils of low educational attainment and low income appear to have a built-in, self-perpetuating force. It becomes a vicious circle because low educational attainment begets low educational attainment, and this in turn begets poverty. In the labor market, as in many other situations in life, knowledge is power. Lack of knowledge, skills, and training leaves large numbers with little, if any, economic power.

The age span from 25 up to 54 years is normally the prime working period of the entire lifetime. However, the record indicates that wage-earners in more than two out of every five families found in poverty fell within this age group. There can be

little question that these persons suffer the extreme disability of low educational training.

In this connection, it is significant that the median income in 1963 of 8,784,000 income recipients aged 25 or above and who had not completed 8 years of school was $2,397. Median income of the 7,525,000 who had completed eight grades only was $4,076, a difference of $1,679. (Bureau of Census, *Current Population Reports,* Series P-60, No. 43). This is about 25 percent below the poverty line for a family of four as established by the Social Security Administration.

Two other important questions left unanswered by this statistic are: (1) What supplemental relief assistance did these 8.75 million persons and their families receive and (2) what was the cost of direct relief assistance provided wholly at taxpayer's expense? Notwithstanding the long tradition of free public education through the secondary level, in 1963 there were slightly under 25 million people who had terminated before completing high school.

GEOGRAPHY AND POVERTY

While poverty is restricted to no area the heaviest concentration of poverty is in the "Old South." The 10 states having the lowest median educational attainment were used to establish a relationship between the level of schooling and income. The results of the tabulation are presented in table 2.

All of these states, it will be observed are in the southeastern United States. Only two of the ten states had a level of schooling completed of 9 years or more. The combined average median was 8.86, compared with 10.6 years for all of the United States. Per capita personal income for these states averaged $1,938 in 1965, compared with the United States average of $2,724. Whereas their educational attainment was 84 percent that of the nation, their personal income attainment was only 71 percent. This supports the earlier observation that low education and training exert little economic power in the market place. The

Table 2. Ten States with Lowest Educational Attainment in Years of School Completed, 1960.

State	Median years school completed	Percent United States average	Per capita personal income 1960	Per capita personal income 1965	Percent United States average	Personal income rank
United States	10.6	100	$2215	$2724	100	....
West Virginia	8.8	83	1602	2007	74	45
North Carolina	8.9	84	1560	2028	74	44
South Carolina	8.7	82	1379	1838	67	48
Georgia	9.0	85	1639	2156	79	40
Kentucky	8.7	82	1586	2043	75	43
Tennessee	8.8	83	1545	1992	73	46
Alabama	9.1	86	1487	1910	70	47
Mississippi	8.9	84	1204	1566	57	50
Arkansas	8.9	84	1379	1781	65	49
Louisiana	8.8	83	1665	2061	76	41
Percent of U.S. Average	....	84	68	71	71	....

Source: **Statistical Abstract of the United States**, 1966, pp. 114, 330-331.

tabulation compares educational attainment and income in the 10 states with the lowest levels with the 10 states having the highest:

Classification	Education-level years school completed	Education Index	Per capita personal income 1965	Income Index
Ten lowest	8.86	100	$1,938	100
Ten highest	12.01	135.6	2,807	144
Difference	3.15	35.6 %	$ 869	44

The 10 states listed in table 2 had an average expenditure of $374 per child in average daily attendance compared with a $532 national average. Only one of the 10 exceeded $400 per child. Expenditures per child were only 70 percent of the national average. The correlation coefficient between expenditures per child in the 50 states and per capita personal income was .78. The companion coefficient relating education to income was .61. Income per capita, to repeat, was 71 percent of that for the nation. In educational attainment, these states ranked number 41 to 50. In personal income per capita, they ranked 40 to 50. One

agricultural state slipped in to rank number 42. Educational attainment in this latter state was 9.3 years, only slightly above that for the poorest states.

Are school expenditures low because income is low or is income low because school expenditures are low or are they reciprocating, self-reinforcing, and feedback situations? Perhaps an electronic computer directed by a highly skilled and sophisticated programmer may some day untangle this riddle and provide quantitative guidance on the question of "which is the hen and which the egg?" It now appears to be a vicious circle with each condition having reciprocal action and effect on the other. The problem admittedly involves far more than the relation of incomes and expenditures for schools. Embodied in it are racial, cultural, institutional, and social considerations of extreme complexity. But the economic problem is there with glaring manifestations and implications. The statement has been made that "poverty must not be a bar to learning, and learning must offer an escape from poverty." (President Johnson, University of Michigan Address, May 22, 1964). To accomplish this goal will require substantial commitment of resources, both human and material, and a firm determination to demolish barriers: racial, social, economic, and cultural that have severely restricted educational opportunities and economic freedom which now appear to be struggling for a new birth in the Old South.

CHILDREN AND POVERTY

The war on poverty will in all probability be won or lost among the ranks of the children. In 1964, the year in which this war was officially declared, there were 14.8 million children under 18 years of age living in poverty. Of this number, 11.5 million or 77 percent, received no public assistance. (*Economic Report of the President,* 1966, p. 114)

A vital decision of public policy is apparently the choice between spending a dollar now to uncover and eradicate the root

causes of poverty vs. assuming greatly expanded relief expenditures in the next decade and those that will follow. The educational outlay, it should be observed, is an investment. The relief expenditure is consumption. The first gives promise of making the child a productive, self-sustaining economic entity capable of yielding a social dividend and of enjoying a life of dignity and decency. The second promises only continuation.

What are the most effective and efficient methods of dealing with poverty-stricken, educationally deprived, and socially underdeveloped children? Some of these unfortunate youngsters have been known to enter school with a vocabulary of only 20 words. Unless effective remedial work is done, such a child is a strong dropout prospect from the very outset. Because of the deadening influence of poverty on the child's development, proposals have been advanced that the child should be lifted out of the stifling home atmosphere and placed in surroundings conducive to normal development. In contrast to this approach, the Head-Start program is based on the concept of providing early educational and social experience for the child in a classroom setting, while at the same time an effort is made to organize the resources of the community to provide the full range of services needed by the child and by his family. To rescue the child from poverty, the parents must become involved. The Head-Start program is based on the theory that efforts will be most fruitful if the environmental conditions in the home are improved concurrent with the child's introduction to the environment of the new world which lies outside the confines of his highly restricted home experiences. Without remedial action many of these children are certain to perpetuate their unfortunate breed in the next generation and in the unending succession of those to follow.

THE CURRENT COMMITMENT

If these 14.8 million children of adversity can be rescued from poverty, tax payers could be saved billions. Grants to the states by the Federal government for aid to families with dependent children in 1965 fiscal year amounted to $1,118 million.

This represented 35 percent of all Federal welfare grants in 1965. This amount was second only to old-age assistance which was $1,134 million. (*Health, Education, and Welfare Annual Report,* 1965, p. 124). Recall that three-fourths of these children received no assistance. Had help been extended to all needy children, the total grant would have probably exceeded $4 billion. The total funding for all Community Action Programs in the current fiscal year was $817 million. Included is the funding of Head-Start. The total Federal share was $735 million or 66 percent direct aid. (Advisory Commission on Intergovernmental Relations, *Intergovernmental Relations and the Poverty Program,* Washington, 1966, p. 156). The projected figures for the entire Head-Start program in the fiscal year 1968 total only $349 million.

POVERTY, JUVENILE DELINQUENCY, AND CRIME

An incontrovertible fact is that there exists a high correlation between poverty, slum neighborhoods, and juvenile delinquency. The publication of the report "The Challenge of Crime in a Free Society" confirms and reinforces earlier studies on juvenile delinquency. (A Report by the President's Commission on Law Enforcement and Administration of Justice, Washington, U.S. Government Printing Office, 1967, p. 57). This report again affirms that numerous studies have revealed the relationship between certain deprived areas — particularly the slums of large cities — and delinquency. The inescapable conclusion is that juvenile delinquency is directly related to conditions bred by poverty, states the Commission. Delinquency in the slums is a disproportionately high percentage of all delinquency and includes a disproportionately high number of all dangerous acts, is associated with the phenomena of poverty and slums. One of the most compelling reasons for eradication of slums is that it will control crime. (p. 59)

The slums of virtually every American city harbor in alarming amounts, not only physical deprivation and spiritual despair, but downright cynicism about the avowed intention of the outside world to close the gap. The slum dweller does not reject the

goals and the values of more fortunate members of society who live in "that other world." He feels a deep sense of frustration in his inability to share in the good life. His sense of frustration is transmitted to his children who give expression to their disappointments and disillusionment in anti-social behavior manifested by a disrespect and contempt for law and criminal behavior. The rate of juvenile delinquency, closely identified with and spawned by poverty has been and still is increasing at an alarming rate.

The Commission provides figures which show that the economic cost of crime to our society is more than $24 billion annually. (pp. 33-34) A significant amount of this cost is attributable directly to poverty, slums, deprivation, and destruction of human values and indifference of society to the plight of the fifth of the population mired in despair and hopelessness. But alarm multiplies as these slum dwellers make forays in ever increasing numbers into "respectable neighborhoods" committing acts of violence and plunder. How shall we measure the real disutility of poverty to the social order?

When the "gracious lady" standing at the entrance of the New York harbor issued that clarion, soul lifting invitation: "Give me your tired, your poor, your huddled masses yearning to breathe free, the wretched refuse of your teeming shore. Send these, the homeless, tempest tossed to me," there was no intimation that they may merely shift from a ghetto in Europe to be trapped in an equally pestiferous slum in New York. Yet there are 34 million of these "tempest-tossed" jammed into and stagnating in slums in urban and rural America.

POVERTY NOT A LOCAL OR REGIONAL PROBLEM

Persons reared in poverty, lacking in education, and without productive skills are a liability and a threat to every other area regardless of where they live. Internally no method has been devised by any State to quarantine against the intrusion of citizens possessed of these disabilities. Movement from depressed or decadent areas and infiltration into dynamic and viable areas, is inevitable and no doubt desirable for those moving; but the

newcomers may create problems in the new environment. Whether or not this is the case will depend upon their preparation and ability to compete in the market place for employment. Trained people will be an asset to the receiving area, untrained in-migrants are most likely to bring added problems to the community.

From March 1965 to March 1966, more than 6 million persons crossed state lines to take up new residence. Of these movers, some 2 million relocated in a state contiguous to the one they left and about 4.5 million moved to a non-contiguous state. This is equivalent to relocating the entire populations of six states the size of Utah. Among the age groups, mobility is highest for those in the 25 to 34 year old bracket. Educationally, it is greatest for those with one or more years of college training. However, among these interstate movers age 25 years or over, 471,000 had 8 years of schooling or less and 897,000 of them had not completed high school. (Bureau of the Census, *Series P-20,* No. 156, December 9, 1966, pp. 9, 16.)

Confronted with this magnitude of interchange, can any state or area escape the educational and training deficiencies of any other state or area? With this continuous population flux, each state has occasion for real concern with the quality and comprehensiveness of the educational program in every other state. This interest is compounded for those states with superior public education offerings when they contemplate sister states with grossly inadequate educational opportunities, whether arising from financial, racial, cultural, or other causes. In 1960, 41 percent of all non-white adults residing in the North and West were born in the "Old South."

Based on purely economic considerations, can even a wealthy nation, such as the United States, afford the economic waste generated because one-fifth of its citizens live in poverty? In addition to the wastage of human resources and of reduced physical production, there are indeterminable social, cultural and monetary costs. The Twentieth Century Fund study estimates the direct cost for support of the poor is $11,250 million. (Ornati, 1966, p. 105).

Two things with respect to poverty as a national problem appear as certain as death: (1) negativism offers no cure, (2) the problem will never cure itself. How vigorously should the nation prosecute the war on poverty? The declaration of this war in 1964 and the creation of the Office of Economic Opportunity to map the strategy for the war on poverty were too long delayed. Now that official notice has been taken of the problem, what resources, human and material, is the nation willing to commit to this fight?

Wars, particularly aggressive wars, make heavy demands on resources, human and material. The war on poverty is designed as a broad intergovernment operation: federal, state and local. After three years it is appropriate to ask, how goes the war? There are those who think it cannot be won and would therefore, abandon the fight. Others feel the escalation has been painfully slow and that it should be prosecuted far more vigorously and aggressively. When the magnitude of the problem is recognized it must be admitted that to date the war has been a probing action, a preliminary skirmish. In the third year of engagement the federal government will spend less than a billion dollars, state and local government outlays are only $100 million. Thus far, the Congress has committed to this war less than 1/30 of the annual cost of crime and almost certainly not more than 5¢ on the dollar of the Vietnam war cost. The total federal expenditure to rescue and reclaim a fifth of the population and more than 14 million children from poverty is less than 2 percent of the defense budget and roughly 1/10 of a percent of the GNP. In relation to the present and urgent need this monetary commitment is a mere pittance. There must be a careful equating of the cost of doing vs. the certain cost of not doing.

Without an aroused public which is convinced of both the economic and the social disutility of poverty, that poverty is a social evil and that to tolerate it is morally wrong, the war would fizzle out in a minor skirmish. To win this unconditional war will require far greater resources than have been committed to this time. It can never be won with platitudes nor remote sym-

pathy. In the minimal support given to date is the nation acting penny wise and dollar foolish? If, after careful appraisal and evaluation, the consensus is that existing programs and tools are inadequate for the task, then new ones must be devised. The public conscience and all agencies from the Whitehouse to the courthouse must join the battle if the goal of eradicating poverty is to be achieved. Can the nation afford to do less?

EDUCATION AS INVESTMENT

Personal fulfillment is to be achieved only as the individual is enabled through free institutions to develop and realize his capabilities. This attainment for each person is vital but such development goes beyond the person to the vitality and well being of the nation itself. Access to a quality education is the third in the scale of national goals.

Education will not cure all problems of society, but without it no cure for any problem is possible. (President Johnson to the White House Conference on Education, July, 1965). His commitment to youth is given in these words, "We must provide full and free access to a first-rate education for all our youth, with later opportunities to develop their talents to the fullest measure of their abilities. The commitment of the administration is to expand education and training opportunities for every citizen" (*Manpower Report,* 1966, p. XVIII).

Is it not quite amazing that after a strong tradition of free public education which would cover the life span of practically every person now living in our nation, there are 8 million adult Americans who have not finished 5 years of school. In our society with its demands upon an informed citizenry, this group, because of the extremely limited level of their educational attainment, is by any meaningful yardstick, "functionally illiterate." Nearly 20 million adults have not finished 8 years of school; almost 54 million, more than one-fourth of all Americans, have not finished high school. These 54 million citizens represented

slightly less than half (47 percent) of our population 21 years of age and over as of July 1, 1965. The above figures appear to reflect some fundamental shortcomings in our monumental system of free education.

For some reason the school has failed to reach millions of these citizens to equip them with the training and skills demanded in our industrial society. It has been observed that deficiencies in education are the prime reason for rejection in the labor market and the principal underlying cause of poverty. It is impossible for a person to effectively function in the "space age" with an "ox cart" education.

There has however been a substantial increase in the educational level of the labor force in the postwar period as reflected in the following tabulation:

Table 3. Rising educational level of the labor force

Educational level	Percent 1952	1962	Percent Change
College graduate (age 18+)	7.9	11.0	39
High school graduate	26.6	32.1	21
Non-white high school graduate	9.5	18.3	93
Five to eight years of school	30.2	22.4	26
Less than five years school	7.3	4.6	−37

(Figures do not add because of omission of certain categories)
Source: Manpower Report, 1963, p. 156.

There is some reason for encouragement that in one decade the number of college graduates in the labor force increased 39 percent. Perhaps most significant is that the percentage of non-white high school graduates almost doubled. Notwithstanding this improvement almost every appraisal of educational needs and the willingness of the public to meet that need reaches pessimistic conclusions. Elementary and secondary school enrollment in 1955 was 35.3 million. Currently it is 49.7 million and by 1975 is expected to be 53.6 million. Classrooms are seriously over crowded yet new construction is geared to meet only about 60 percent of the expanding need. The nation is threatened with

a serious shortage of teachers which has already materialized in many areas. Because of superior financial inducements industry syphons off the best educational talent.

INVESTMENT IN EDUCATION AND IN REPRODUCIBLE CAPITAL

Investment in education is the expenditures made by public and private agencies for formal classroom and laboratory-type instruction from the kindergarten through the graduate school. Expenditures reported represent total federal, state, local, and private outlays in support of education.

The U.S. Office of Education has compiled data on educational inputs. Dollar amounts by years are given in Appendix A. Outlays 1956 through 1965 aggregated $268.7 billion, an annual average of $26.9 billion. This figure covers current operation, capital outlay, interest on debt but not debt retirement. Data on aggregate expenditures for developing the mind and those committed to expanding physical capital appear in table 4.

Table 4. Gross national product, gross private domestic investment, and total expenditures, public and private, for educational purposes 1956-1965 (In billions of current dollars)

Year	GNP[2]	Gross Private invest(a)	Education expend(b)	Percent of GNP: Private invest.	Percent of GNP: Education	Ratio Col. 3 Col. 2
	(1)	(2)	(3)	(4)	(5)	(6)
1956	$419.2	$ 69.4	$16.7	16.56	3.98	24.06
1957	441.1	67.0	19.2	15.19	4.35	28.66
1958	447.3	60.1	21.0	13.44	4.69	34.94
1959	483.6	74.5	22.4	15.41	4.63	30.07
1960	503.8	73.9	24.6	14.66	4.88	33.29
1961	520.1	70.6	27.0	13.57	5.19	38.24
1962	560.3	81.9	29.4	14.61	5.25	35.90
1963	589.2	85.6	32.4	14.53	5.50	37.85
1964	628.7	91.4	36.3	14.54	5.77	39.72
1965	675.6	103.2	37.9	15.28	5.88	36.72
10 yr. Aver.	$526.9	$ 77.8	$26.9	14.78	5.01	34.58

(a) Capital outlay for private educational institutions deducted from gross private domestic investment to avoid double counting.

(b) GNP and gross investment are on calendar year basis, school expenditures are for fiscal years.

Source: **Economic Report of the President, 1966** and U.S. Office of Education.

During the same period, the gross private domestic investment, excluding the capital outlays of private educational institutions was $778 billion. Investment in plant and equipment during the decade was 2.9 times the public and private investment in human capital. Reduced to an annual per capita basis the figures were $427 and $148 respectively. For each dollar invested in people our sense of values has committed 3 dollars in concrete and steel.

It is certain that both investments contributed to the astonishing $256-billion increase in the GNP, but their relative contributions must remain a matter of estimate to which I will return.

Two other considerations require attention when comparing investment in reproducible goods and in human beings. First, much of the commitment in people is expended on persons who may never enter the labor force and, therefore, whose productivity is not rung up on the "national cash register" to swell GNP figures. Again expenditures whose prime purpose is to "enrich life" rather than merely increase productive efficiency do not register in the GNP. Finally, there is a long lag between the initial investment in education and the registering of returns in output. In the expenditures for education reflected in table 4, the child in the third grade in 1956 would have just entered the labor force in 1965 if he made normal progress and completed high school. No such lag occurs with investment in physical hardware. From initial outlays to "going on stream" will require only a year or 2. Only the latest of the commitments will not have shown up as new productive capacity. Much, and in some cases, all the useful life of the earliest commitments will have been exhausted. By contrast, Bachelor of Science recipients in June 1967, will embody 16 years of direct investment in their education to prepare them for productive service for personal fulfillment and a richness of living.

This "delayed response" of investment in formal training will have a considerable "stretch out" period in its impact on

GNP. The student who completed the eighth grade in 1956 and then continued on through college reached the labor force in mid 1964. Among other things, may it be that the prosperity of the 1960's is related to the fact that earned doctors degrees more than doubled, earned masters degrees increased by 135 percent, and bachelors degrees were up about 60 percent in the period 1955-56 through 1964-65?

What is the rate of depreciation and obsolesence on physical capital equipment? What is the rate of obsolesence in educational investment? Confronted with the technological revolution and the necessity for educational retraining to keep pace with this development, we can reasonably assume that the rate of obsolesence of educational investment approximates that on physical capital. It was this fact that prompted Francis Keppel, former U.S. Commissioner of Education and now Chairman of the General Learning Corporation to say:

> "A necessary revolution in American education implies continuing education. No longer can individuals talk of completing their education. For those who move to college and graduate school and into the professions, there is a constant need to keep up to date . . . So too, in business and industry faced by the technological progress of automation, workers need frequent retraining if their skills are not to become obsolete and if they themselves are not to become unemployable." (*Saturday Review,* January 14, 1967, p. 58)

In today's world, the man who "completes" his education must expect a very high rate of obsolesence.

Also noteworthy is the fact that net private investment commitments ranged from $21.2 billion in 1958 to $44.5 billion in 1965. In 4 of the 10 years, however, investment dropped below that of the preceding year. With respect to expenditures on education, the increase was gradual and persistent. In every year there was an increase over the preceding year. Evidently, stability in educational investment tended to offset instability in private investment and thereby contributed to a more stable GNP.

EDUCATIONAL AND PHYSICAL CAPITAL EXPENDITURES AND GROSS NATIONAL PRODUCT

Another measure of the national commitment to education is to compare the percentage of gross national product devoted to education and that devoted to physical capital formation. Over the 10 year period educational investment increased from 3.98 to 5.88 percent of GNP, comparable figures for investment in physical capital were 16.56 percent in 1956 and 15.28 percent in 1965. Investment in education advanced from about ¼ to ⅓ of investment in reproducible capital equipment.

In constant 1965-66 dollars, the Office of Education projects an increase from $47.5 billion to $65.9 billion during the next 10 years for educational outlays. This would represent an actual increase in real terms of 38.7 percent. Based on constant 1965 prices, the National Planning Association forecasts a GNP in 1976 of $1,097 billion. Using these two projections, educational expenditures in 1975-76 would absorb 6.01 percent of the GNP, up .13 percent from the 1965-66 rate. For higher education, they foresee a 55 percent gain; for elementary and secondary education, a 30 percent increase through the year 1975-76. According to their projection, the relative cost borne by the public school system, including higher education, will increase somewhat as compared with the private educational effort. If these projections prove to be reasonably accurate they imply that educational investment is to be frozen substantially at its 1965 rate in terms of the GNP.

EDUCATION AND ECONOMIC GROWTH

Sustained economic growth is imperative if the nation is to meet its free world responsibilities and achieve its domestic goals and aspirations. Does a dollar invested in the mind generate as much economic growth as a dollar invested in steel and concrete? Edward F. Dennison attempted to answer this question with specific indicators of growth in the United States during the past 50 years (1962-148). His findings indicate that labor played a significant role in the growth rate of the nation. He attempted to measure the contribution of labor adjusted for quality change.

On this basis labor made the greatest contribution to growth of any one of factors examined. To education, used in a more restricted sense, he attributed the next highest growth-rate contribution. According to Dennison, the contribution of education exceeded, by a wide margin, the contribution of capital to the real rate of economic growth. After making these interesting estimates based on careful calculation, he makes the observation, "My crystal ball is no less murky than the next man's; my only hope is that in trying to peer within it for some additional elements that seem to me relevant and important, I may have approached closer to the whole truth. Second, the future growth of inputs will be influenced by the policies we adopt (1962-152)". Appendix table 3 carries the detail of this aspect of his work.

Notwithstanding the significant improvement in the educational level during the postwar period, the same differential in relative earning power for those at various educational levels appears to prevail at the present time as was the case two decades ago. This seems to indicate that even though the supply curve of educational talent had shifted far to the right, the demand curve for this talent had made an equal shift. How much further the demand curve can be pushed to the right with the increasing need for skilled and technically trained manpower, only time will tell. Manpower shortages are emerging. In January 1966, only 1.4 percent of the professional and technical workers were listed as unemployed. This is probably approaching an irreducible minimum caused by seasonal and frictional factors which prevent further reduction. (Statements submitted to the Joint Economic Committee by Commissioner Arthur M. Ross, February 8, 1966.)

WHO BEARS THE COST OF EDUCATION?

Many persons would have a quick and decisive answer to this question — "the taxpayer, of course." Table A in the Appendix indicates that roughly $4 of public expenditures are made for each $1 of private expenditures in support of education. The dollar figures shown in table A, however, do not include certain

special schools for exceptional children, schools for Indians on Indian Reservations, or schools for military personnel on military posts. Then there is a wide assortment of trade schools, technical schools, and business colleges that do not fit into the regular public school framework. All of these institutions, however, are engaged in some form of human resource development. Particularly important, under the prevailing condition, are the trade schools, technical schools, and business colleges whose primary function is to teach specialized skills.

Professor Theodore Schultz of the University of Chicago divided the cost of education into two principal categories: (1) the school outlays which consist of the actual expenditures for the operation of the institution, and (2) earnings foregone by the learner. Earnings foregone will be referred to as "opportunity costs." The estimates of Professor Schultz are based on 1956 prices and appear in table 5. It is doubtful if the absolute amounts have much significance, but the relative amounts or the relationships appear very significant.

Table 5. School costs, earnings foregone, and total costs of schooling per student per year in the United States

Level of schooling	School costs	Earnings foregone	Total	Earnings foregone as Percentage of total costs	Index of cost
United States, 1956 (dollars)					
8 years elementary	$ 280	$ 0	$ 280	$ 0	$ 100
4 years high school	568	852	1,420	60	507
4 years college or univ.	1,353	1,947	3,300	59	1,179

Source: Schultz, Theodore W., **The Economic Value of Education**, New York; Columbia University Press, p. 29. (Used by permission of publisher.)

In the first eight grades, there are no earnings foregone. Therefore, the total cost is the money cost of providing the educational service. This is used as a cost index of 100.

In the 4 years of high school, the opportunity costs exceed the taxpayer costs by one half. This would be true, however, only under conditions of reasonably full employment. When a

high level of unemployment exists and teenagers find difficulty either in locating or holding a job, the opportunity cost of high school may be reduced to near zero. This apparently was the case during the early 1960's when the unemployment rate for teenagers was extraordinarily high. Even in periods of high level economic activity and high employment rates, there are always depressed areas where many youths are either in school or idle. Again in this case, the opportunity cost is negligible. This calculation indicates that when the student graduates from high school, some 4,500 tax dollars have been invested in his education. In addition to this, it is assumed that he will, on the average, have foregone earnings during his 4 year high-school period of about $3,400 — a total educational investment of $7,900. Assuming full employment and the opportunity cost used by Professor Schultz, the taxpayer bears about 57 percent and the student about 43 percent of the investment in a high-school education. At the college level, the opportunity costs exceed the high school level by more than two to one. Moreover, the probability of the college-age student being able to obtain employment is, under the normal situation, materially greater than is that of the high-school student. On the basis of Professor Schultz's informed estimate, the college graduate, after 16 years of school, will have a total investment in his formal education of about $21,000, of which he will have borne a cost of $12,600 (60 percent) in earnings foregone, and the taxpayer will have borne some substantial portion of the remaining $8,400 (40 percent). The amount of taxpayer contribution will be governed in part by the tuition charges in the higher institution attended.

As a reasonable approximation, therefore, society has an investment of about $2,200 in a student when he completes the eighth grade. It doubles its investment in the student to put him through high school, at which time, some 4,500 public dollars have been spent on his education.

If it is assumed that the public support of the institution of higher education provides $600 per year for the student to pursue his college training, the taxpayer will then have provided

slightly under $7,000 for the training of the four-year college graduate. In 1966-67, it is estimated that total public support of institutions of higher education was 62 percent of their total outlays excluding debt retirement (U.S. Office of Education, Projections to 1975-76, p. 60.). Under these assumptions, the college graduate will invest in his own training some $14,000. He invests $2 of his money for each $1 of tax money advanced for his education. To finance his college education, the student will have either worked and provided his own funds, received support from parents, or to a much lesser degree received a scholarship or grant or incurred debt to pursue his formal training. It should never be assumed that the BS degree awarded to the graduate comes to him as a free gift from generous taxpayers or that the students' only costs are those represented by "sweat, blood and tears." He has made a real financial commitment.

WHO BENEFITS FROM EDUCATION

Under the assumptions made above relative to the investment of public and private funds in human capital, who derives the principal benefits? Apparently, the benefits will have to be equated on the basis of private costs incurred and private benefits received, social costs and social benefits, private costs and social benefits, and social costs and private benefits. (Fritz Machlup, *The Production and Distribution of Knowledge in the United States,* New Jersey, Princeton University Press, 1962 p. 110-111)

Calculation of costs involve far fewer complexities than calculation of benefits. How does one measure the benefit to the community of an educated, competent, productive, responsible citizen? The individual probably never captures all of the benefits from the expenditures made on his education. Evidence seems to indicate that investment in people on the part of society yields substantial returns to the body politic. A calculus for determining the precise benefits has not been developed.

It is now widespread practice for corporations and other business entities to invest large sums in top management and executives. The prime reason is that the benefits (generation of profits) accrue to the firm. Investment in management is one of

the best avenues for achievement of this goal. If this is true of the business entity, may it not be equally true of society?

In a study covering personnel in the aerospace industry in Utah in 1962 by this author, information was obtained on worker income. Also, an estimate of the return to the taxpayer on his investment in the person's higher education was calculated from tax payment data reported by the respondents. The results were these:

Level of education	No. of persons reporting	Average income	Index	Return on taxpayer investment
High school graduate	249	$ 5,914	100	13.3 percent
BS College degree	220	7,327	124	12.8 percent
MS College degree	21	11,108	188	20.9 percent

Those with master's degrees reported having paid an average of $1,437 in taxes, almost double the amount paid by the high school graduate; and this group of high school graduates were at a high income level based on their educational training.

In addition to an apparent high return on the taxpayer investment, the situation is much more far reaching than taxpayer return. The aerospace industry makes heavy demands upon a high level of formal training. Only 3.2 percent of the males and 10.9 percent of the females employed in the Utah aerospace industry had not completed high school. Seventy-five percent of the men had done work beyond the high school and 31 percent had earned a BS degree or had gone beyond that level. Therefore, each college-degree holder was responsible for creating two supporting jobs. Without the higher trained personnel no jobs could have been created for those with lesser training. Evidently, college training spawns jobs for non-college trained persons.

Several investigators have recently undertaken intensive study to ascertain the return on investment in education. Among the leaders in this field is Professor Gary S. Becker of the National Bureau of Economic Research. As a result of his investigation, he concluded that the return on the total investment in

higher education is substantially the equivalent of the return on investment in physical capital. He is of the opinion, however, that if more capable individuals would continue their college education, they would upgrade the productivity of the college graduate and thus yield a larger return on the investment made in people. (*American Economic Review,* May, 1960, pp. 346-354)

A sizeable proportion of high school graduates with the highest I.Q.'s fail to continue on in college. If this capable group of individuals could be induced to continue their college and university education, they would undoubtedly make a substantial contribution to social progress. The principal reasons for these individuals failing to pursue higher education appear to be three: (1) They are unaware of the benefits to be had from continued education. This unawareness is likely to be found in both the student and the parent, particularly if the child is from a low income home. (2) The parents are unwilling or unable to bear the cost of education. (3) Well established credit facilities where students might obtain funds for their education are lacking.

To assume that all benefits derived from investment in people can be measured in dollars and cents terms would be absurd. But when the economic yardstick is applied investment in human capital appears to yield a return at least equivalent to that invested in physical capital. The additional social dividends, those over and above and perhaps more important than the economic, would have to be equated to in arriving at the total values of educational expenditures. Since social and cultural values do not lend themselves to quantitative measurement what yardstick shall be applied?

HIGHER EDUCATION AND HUMAN RESOURCE DEVELOPMENT

The importance of the university as the center for human resource development is assumed to be general knowledge. But to what extent do we recognize the full scope of their importance

as centers to foster economic growth and national well being? As the epicenter of the knowledge industry they are responsible for the discovery and dissemination of knowledge that have direct and immediate bearing on national survival. They must foster an unending search to discover physical, biological, and social forces that impinge upon and govern human relationships both nationally and internationally.

The basic function of the university is to discover, develop, and supply our nation with leadership. This it must do in the fields of science, education, medicine, business, social, and cultural. Leland J. Haworth, Director of the National Science Foundation (NSF), affirms that the universities are the pacemakers for our whole educational and intellectual life. (*Educational Record,* Spring 1966, p. 127) Theirs is the preeminent responsibility of human resource development at its highest levels. By a rough and inexact process of selection and screening they receive basically some portion of the nation's youth most richly endowed with talent (and perhaps not incidently with money). Discovery, development, refinement, and effective utilization of this talent which emerges from our higher educational institutions will most certainly establish the future course of national development and well-being. The direction, extent, and intensity of this developmental and refining process will be the decisive factor in providing leadership for the nation and the free world.

In periods of crises when the nation has been seriously and dangerously threatened from external foes it has called on the universities to provide the brain power requisite for national security. Accomplishments of the universities in these critical periods are perhaps unparalleled. And today the physical and life scientists add new and lustrous accomplishments in an unending succession. Foundations also have made enormous contributions to national well-being but it is imperative for them to draw on the universities for the talent which make their accomplishments possible.

WHERE THE BRAINS ARE

A highly effective marshalling of top brain power provides some clues to the almost incredible achievements in space, in weaponry, in automated systems and devices, in hardware and gadgetry. Ralph Lapp, the noted nuclear physicist, points out that these achievements come from "where the brains are." Moreover, those possessed of this brain power are intensely sought after, even though they probably have to take second place to just a fairly good football quarterback. They possess a high mobility factor. To accomplish their work they tend to concentrate in restricted geographical areas. Excellence attracts excellence. The Governor of Illinois opined that Illinois develops minds and then ships the finished product to every state in the nation to help them develop their intellectual and economic potential. Departure of each such finished product represents a loss of at least $50,000 per year to the economy of the State and potentially very much more. Dr. Lapp refers to this out migration as "brain drain" and to the in migration as "brain gain." (*Fortune,* March 1966, p. 154-155)

There are evidences that California has been brilliantly successful both in producing and importing brains. California with 9.6 percent of the nation's population has 21 of the nation's 47 Nobel Prize winners in science (45 percent). In the fiscal years 1961 through 1966, California obtained $7,035 million of the $15,221 million of the much sought after contracts awarded by NASA (46.2 percent). (Source: NASA *Annual Procurement Report,* 1966, Washington). Per capita income in California 1965 was $3196 which was 17 percent above the national average. For the distribution of this brain power within the nation, consult Appendix C. It may be noted that Utah is in the "brain gain" column.

THE PHYSICAL SCIENTIST AND THE SOCIAL SCIENTIST

This seems to pose a question of the first magnitude. Given similarly adequate financial support, dedication, and purpose and commitment of brilliant brain power to the perplexing social and economic problem that beset the nation, could the social

scientists produce results in the field of human relations that would match the achievements of the physical and life scientists?

What factors account for what appears to be the wide differences in post-war accomplishments of the physical scientists and the seeming slow pace of the social scientist in finding solutions to the maze of troublesome and persistent conflicts and frictions that are spawned in Watts, Harlem, Hough and countless other ghettos and central city pest holes? What major breakthroughs have been achieved in the area of human relations or are these problems of such complexity that break throughs are impossible to achieve or to identify? The physical scientist is fortified with the demonstrable and often the spectacular in his achievements.

Perhaps part of the answer lies in the level of resource support. During the period 1958 through 1966, Federal obligations made for research and development were as follows:

Table 6. Federal research and devlopment support, 1958 through 1966

Purpose	Federal Support in millions
Total research and development funds obligated	$94,841
For basic research (new knowledge)	10,230
For applied research (application)	19,595
Development (new products, processes, techniques)	65,018
For life sciences	7,305
For physical sciences	20,386
For social sciences	683

Source: **Statistical Abstract of the United States, 1966, p. 542.**

Social sciences received 0.72 percent of total research and development obligations. Put another way, out of every $140 of federal funds obligated for research and development the social sciences got one dollar. University personnel in 1961 had 11 faculty members in the physical and life sciences engaged in research for each one from the social sciences. The ratio for non-faculty professional personnel similarly engaged was 30 to 1. (National Science Foundation, *Scientific and Technical Manpower Resources,* 64-28, pp. 64-65) Under these circumstances, should equal performance in problem solution be expected? If

further evidence of support level is needed the following provides factual concrete data.

Table 7. Number of scientists by field engaged in basic and applied research

Discipline	Total	Basic research	Applied research
Chemistry	23,079	12,472	10,607
Earth Sciences	2,808	1,696	1,112
Physics	12,284	8,040	4,244
Biological	10,899	7,368	3,531
	49,070	29,576	19,494
Percent of total	95.1	57.3	37.8
Economics	1,880	584	1,296
Sociology	649	209	440
	2,529	793	1,736
Percent of total	4.9	1.5	3.4

Source: **Reviews of Data on Science Resources**, National Science Foundation 64-27, December 1964, p. 6.

Basic research in the social sciences, the primary purpose of which is to seek new knowledge, hardly get's on the score board, if indeed it participates in the game. In this game the lone social scientist was outnumbered 37 to 1 by the physical and life scientists. Moreover the above provides no clue as to scientific equipment and apparatus that would support the research effort in each area. It may be equally unbalanced.

Federal support of research in the social sciences has been only a drop or two from the R & D bucket. These allocations represent implementation of vital decisions on the part of national leaders in utilization of trained manpower to find solutions to critical national problems.

In addition to the multi-billions of support provided by the Federal Government, industry funding of research in physical and life sciences has advanced rapidly from $3.4 billion in 1957 to $8.2 billion in 1967. (*Industrial Research*, January 1967, pp. 52-53.) It is certain that industry research is product and profit oriented and will continue so. Just as states would not and could not support high technology research there seems slight reason to believe that the states individually will have either the

incentive or the funds necessary to support social science basic research at high enough level to meet urgent national needs. Is it probable that a greatly accelerated program of basic research would provide new knowledge and new understanding of problems that today threaten the very foundations of our society?

It may be helpful at this point to restate costs that are now being borne and which provide no answers and no solutions. These costs represent either actual outlays of public funds or the best official estimates of concealed costs. All are stated on an annual basis.

ITEM:	IN BILLIONS
a) Unemployment of human resources	$30-40
b) Cost of racial conflict and discrimination	23
c) Direct expenditure to alleviate poverty*	11
d) Direct cost of delinquency and crime	24
Sum of minimum direct costs	$88

ADD:

e) Social cost of 800,000 school dropouts each year?
f) Disease, ill health, degradation of poverty?
g) Death and physical injuries inflicted by crime?

* 26 million non-institutional persons in poverty received no direct assistance in June 1965.

The basic fact that must be recognized is that the costs are incurred. The decision is not whether to spend or not to spend but when and how to spend and in what amounts. Costs may be incurred directly in seeking solutions through utilization of brain power similar in quality and, if necessary, in quantity to that which has been committed to the space-age program and all that it connotes. The other alternative is to continue as we have been doing and shoulder far greater direct and indirect costs.

The evidence appears indisputable that basic research in the social sciences has been greatly undernourished in the post war era. Have the gods of mammon taken over an excessive role in our society at the expense of "things of the spirit"? Let each one do his own soul searching on this question.

THE UNIVERSITIES AND SOCIAL SCIENCE RESEARCH

The universities should become centers for materially accelerated and continuing social research, adequately supported with funds and brain power in order to intensify the search for answers to our ever-mounting problems. There is much to support the proposition that our nation's future will be determined by what happens in the universities. Theirs must be the responsibility of conducting basic social research, of marshalling the facts. Only on the basis of factual knowledge so derived can progress be made. Having discovered the facts, the universities have the responsibility of disseminating the knowledge. Knowledge so obtained must be applied to ameliorate social ills. How effectively they accomplish their crucial role will be determined in great measure by the level of financial and other support given them by private and public agencies. The price tag? Extremely nominal in relation to potential benefits.

OTHER CONSIDERATIONS

WHAT CAUSES WAR?

Consider for example what appears to be largely unexplored and virgin field of inquiry in which we might engage intensive efforts of our social scientists to seek basic knowledge. Utah State University in 1965 created a Center for the Study of the Causes of War and the Conditions for Peace. There are probably few who would question either the broad aim or the need for its undertaking. But the means for its accomplishment raises real problems. In a recent meeting of the Board of Trustees it was reported that the Center had received gifts in excess of $10,000 to pursue its inquiry. This is equivalent to .00000013 of 1 percent (13 one hundred millionths of 1 percent) of the requested national defense budget for 1968. Our funds for research would finance the defense establishment slightly less than 45 seconds. Even the most casual reader will observe considerable imbalance here. What might be the effect of adding a mere 1 percent to the

national security budget ($730 million) and place this amount at the disposal of social scientists in our universities to actually "dig deep" to discover those factors in our basic human and international relationships which are the causes of war and the conditions for peace? Let this be continuing support tied to the budget for national defense so that the search may continue until answers are found. Until the causes of cancer are known we need cancer research. Only people are capable of starting wars. As long as people insist on starting wars do we not need research as to why? May this be a prudent investment of public funds? With this support level it would still be an insignificant fraction of the commitment to invent and produce military hardware, systems, and devices with greater death dealing potential. May it be worth a try? It is worth noting that the Disarmament Agency in the Department of State is now engaged in research covering some aspects of the causes of war. Recognition of this need for research is evidenced in a recent communication from the Department of Defense which indicates that funds for this purpose have more than doubled from 1964 to 1967.

Some sociologists believe our basic knowledge of some underlying causes of social ills far outpaces public willingness to apply remedial action. Threats to vested interests, social and financial status, security, and racial anamosities and deep-seated prejudices may, with present knowledge, erect near insurmountable barriers to knowledge application. What evidence is there that loyalties, interest, understanding, compassion, and willingness to help can be expanded to include people in the generic sense and not be almost wholly confined to classes or small circles of like-minded and similarly-situated folk? The battles of the physical scientist with these obstacles to progress are negligible compared to those of the social scientist.

THOSE OUT OF STATE STUDENTS

And now a final thought regarding the role of the universities in discovering, developing, and supplying trained intellects.

In the discussion on poverty it was observed that states have devised no means of quarantine against infiltration and intrusion of people at the bottom levels of the educational and economic scales. But this is not the case at the upper end of this scale. States do engage in a highly competitive and totally myopic game of excluding students from outside their boundaries by erecting effective tariff barriers in the form of out-of-state tuition. These are designed specifically as "exclusion acts" or perhaps better as "brain barriers." Implicit in the action is — get your training elsewhere and you will be welcome to come here to work.

At the very foundation of our unparalleled economic advance is the constitutional prohibition against barriers to interstate trade. Many states have attempted unsuccessfully to erect effective trade barriers. Should not "commerce" in intellectual traffic be fully as unrestrained? Are we not capable, with our collective wisdom and intelligence, of devising a far more productive and far-sighted policy? What of interstate compacts or reciprocity agreements? What of intergovernmental grants? Could qualification for grants be geared to quality — to excellence? Surely the present restrictive "tariff system" must rank low on the scale as a device to encourage intellectual development. We must do better than this. Perhaps President Johnson's statement that "Poverty shall not be a bar to learning" should be amended to read, "Neither poverty nor state boundary lines shall be bars to learning."

Benefits to be derived from striking down these barriers to intellectual development with the resulting cross-fertilization of intellects and ideas on a thousand and more college and university campuses across the nation are incalculable. Will the next great move forward in our educational philosophy and practice be to make 4 years of college training as free as it is in the high school today? Opportunity costs for the student appear to be rising faster than taxpayer costs. There is abundant evidence that the greatest waste in the nation today is its waste of human brain power potential.

The Soviet Union, our arch competitor for the minds and hearts of men, places education in highest priority. They devote a substantially larger proportion of their GNP to education than does the United States. Available evidence indicates they are far less profligate in their wastage of brain power than are we. National self interest demands that we improve our performance.

THE TASK AHEAD

Is the time ripe for a reappraisal in depth of our relative scale of values? Have social and humanitarian sensitivities been dulled and subordinated by technological and material aspirations? Can our technology be made to serve humane ends? These are essentially the questions raised by Sterling M. McMurrin, former U.S. Commissioner of Education and now Distinguished Professor of Philosophy at the University of Utah. He sees a danger that we could become the creators of a technological order that could define and dictate our ends rather than administer to considerations of human values. In such an order, the things which matter most could be at the mercy of those which matter least. (*Saturday Review,* January 14, 1967, p. 40. Used by permission of SR)

At the outset of this lecture reference was made to the formulation of a statement of national goals by a distinguished Commission. Preeminence was given to human values: recognition of and preservation of the inherent worth and dignity of the individual. Coordinate with this is his right to enjoy full self determination and freedom from discrimination. It must be conceded that today we are a long way from the attainment of these national goals.

The concept for a Great Society was launched by President Johnson at his University of Michigan Commencement Address in May 1964. By what standards and criteria do we measure a Great Society? This obviously is a value judgment where opinions will differ sharply. If greatness consists in the unparalleled accumulations of goods and gadgets then we are indeed already a great society. If greatness consists of intangible qualities as

these are expressed in moral, spiritual, ethical and cultural values, our achievements in this realm are far less dramatic.

Compassion for and deep interest in people as people, as fellow human beings could provide the spark that would ignite the forces and set in motion the actions necessary for the solution of some of our colossal domestic problems: ignorance, poverty, disease, privation and squalor, hopelessness, despair, and crime. There are many who would agree that until we can make substantial progress in the correction or elimination of these and related social ills it is not possible to aspire to the status of a truly Great Society.

To move toward the Great Society, President Johnson issued this invitation:

> "Will you join in the battle to give every citizen the full equality which God enjoins and the law requires, whatever his belief, or race, or the color of his skin.
>
> "Will you join in the battle to give every citizen an escape from the crushing weight of poverty?
>
> "Will you join in the battle to make it possible for all nations to live in enduring peace — as neighbors and not as mortal enemies?
>
> "Will you join in the battle to build the Great Society, to prove that our material progress is only the foundation on which we will build a richer life of mind and spirit?"

This then is the goal of the Great Society. To attain this goal might become a great national aspiration. Only a commitment for education and for the eradication of poverty and misery and for the development of the human resource generally that far surpasses our past efforts will suffice for the attainment of this goal and thereby create a truly Great Society. Are we as a nation prepared to undertake and follow through on such a commitment?

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Appendix A. Expenditures by regular educational institutions: by level of instruction and by control: United States, 1955-56 to 1975-76 (a) (In billions of 1965-66 dollars)

Year and Control (1)	Total (all levels) (2)	Elementary and secondary day schools (b) (nonpublic school expenditures are estimated on basis of expenditures per teacher in public schools)		Institutions of higher education (c)		
		Total (3)	Current expend-itures (d) (4)	Total (5)	Current expend-itures (e) (6)	Capital outlay (f) (7)
1955-56						
Total	20.5	15.5	11.3	5.0	4.0	1.0
Public	16.6	13.8	10.0	2.8	2.2	.6
Nonpublic	3.9	1.7	1.3	2.2	1.8	.4
1957-58						
Total	24.0	17.9	13.1	6.1	4.8	1.3
Public	19.3	15.8	11.6	3.5	2.7	.8
Nonpublic	4.7	2.1	1.5	2.6	2.1	.5
1959-60						
Total	27.1	19.7	15.4	7.4	5.8	1.6
Public	21.5	17.4	13.6	4.1	3.2	.9
Nonpublic	5.6	2.3	1.8	3.3	2.6	.7

Appendix A. (Cont.)

Year and Control (1)	Total (all levels) (2)	Elementary and secondary day schools (b) (nonpublic school expenditures are estimated on basis of expenditures per teacher in public schools)		Institutions of higher education (c)		
		Total (3)	Current expend-itures (d) (4)	Total (5)	Current expend-itures (e) (6)	Capital outlay (f) (7)
1961-62						
Total	31.5	22.3	17.9	9.2	7.3	1.9
Public	24.8	19.7	15.8	5.1	4.0	1.1
Nonpublic	6.7	2.6	2.1	4.1	3.3	.8
1963-64						
Total	37.4	25.4	20.8	12.0	9.0	3.0
Public	29.2	22.3	18.3	6.9	5.0	1.9
Nonpublic	8.2	3.1	2.5	5.1	4.0	1.1
1965-66						
Total	44.8	29.6	24.4	15.2	11.4	3.8
Public	35.1	26.1	21.5	9.0	6.5	2.5
Nonpublic	9.7	3.5	2.9	6.2	4.9	1.3
1967-68						
Total	49.6	32.0	26.8	17.6	14.1	3.5

Appendix A. (Cont.)

Year and Control (1)	Total (all levels) (2)	Elementary and secondary day schools (b) (nonpublic school expenditures are estimated on basis of expenditures per teacher in public schools)		Institutions of higher education (c)		
		Total (3)	Current expend-itures (d) (4)	Total (5)	Current expend-itures (e) (6)	Capital outlay (f) (7)
Public	38.7	28.3	23.7	10.4	8.1	2.3
Nonpublic	10.9	3.7	3.1	7.2	6.0	1.2
1969-70						
Total	52.4	33.7	28.4	18.7	15.7	3.0
Public	41.1	29.9	25.2	11.2	9.2	2.0
Nonpublic	11.3	3.8	3.2	7.5	6.5	1.0
1971-72						
Total	57.2	36.6	31.1	20.6	17.9	2.7
Public	44.5	32.3	27.5	12.2	10.3	1.9
Nonpublic	12.7	4.3	3.6	8.4	7.6	.8
1973-74						
Total	61.6	38.4	32.8	23.2	20.2	3.0
Public	47.8	34.0	29.1	13.8	11.7	2.1
Nonpublic	13.8	4.4	3.7	9.4	8.5	.9

Appendix A. (Cont.)

Year and Control (1)	Total (all levels) (2)	Elementary and secondary day schools (b) (nonpublic school expenditures are estimated on basis of expenditures per teacher in public schools)		Institutions of higher education (c)		
		Total (3)	Current expenditures (d) (4)	Total (5)	Current expenditures (e) (6)	Capital outlay (f) (7)
1975-76						
Total	65.9	40.6	35.0	25.3	22.5	2.8
Public	50.9	35.8	30.9	15.1	13.1	2.0
Nonpublic	15.0	4.8	4.1	10.2	9.4	.8

[a] For sources of data and methodology, see tables 35, 37, 39, 40, 42, and appendix table D, Projections of Educational Statistics to 1975-76, Office of Education, U. S. Dept. of Health, Education, and Welfare, 1966.

[b] Includes the effect of the Elementary and Secondary Education Act of 1965. Excludes expenditures for residential schools for exceptional children, subcollegiate departments of institutions of higher education, Federal schools for Indians, and schools on Federal installations.

[c] Includes expenditures for subcollegiate departments of institutions of higher education, estimated at $78 million in 1965-66.

[d] Includes current expenditures of public elementary and secondary school systems for community services, summer schools, community colleges, and adult education. Interest is included in the estimated current expenditures of nonpublic schools.

Appendix A. (Footnotes Cont.)

[e]Includes expenditures for interest from current funds. Excludes expenditures from current funds for capital outlay.

[f]Estimated capital outlay figures shown here include estimated expenditures for replacement and rehabilitation.

Source: Projections of Educational Statistics to 1975-76. Office of Education, U. S. Department of Health Education, and Welfare, 1966, pp. 67-70.

Appendix B. Preliminary approximation of the contribution of various sources to the growth rate of total real national income.

	Percentage points in growth rate		
	1909-29	1929-57	1909-57
Real national income	2.82	2.93	2.89
Increase in total inputs	2.35	2.11	2.22
Labor, adjusted for quality change	1.60	1.66	1.65
Employment and hours	1.13	.83	.97
Employment	1.11	1.00	1.06
Effect of shorter hours on quality of man-year's work	.02	-.17	-.09
Annual hours	-.23	-.53	-.41
Effect of shorter hours on quality of man-hour's work	.25	.36	.32
Education	.39	.72	.58
Increased experience and better utilization of women workers	.07	.12	.10
Changes in age-sex composition of labor force	.01	-.01	.00
Land	.00	.00	.00
Capital	.75	.45	.57
Nonfarm residential structures	.13	.05	.08
Other structures and equipment	.43	.30	.36
Inventories	.16	.08	.11
U. S.-owned assets abroad	.02	.02	.02
Foreign assets in U. S.	.01	.00	.00
Increase in output per unit of input	.47	.82	.67

Source: Denison, Edward F., The Sources of Economic Growth in the United States and in the Alternatives Before Us. January, 1962, Supplementary Paper No. 13, p. 148. Used by permission of Committee for Economic Development for whom study was undertaken.

Appendix C. "Where the brains are"*

State	Gained (+) or lost (-) scientists	Total Population 7/1/64	Number of Scientists	Scientists per 100,000 Population 1964	Index (deviations from average of 100)
NEW ENGLAND:					
Maine	-	989,000	157	16	39
New Hampshire	-	659,000	225	34	83
Vermont	-	396,000	87	22	54
Massachusetts	-	5,309,000	5,137	97	237
Rhode Island	-	884,000	370	42	102
Connecticut	-	2,783,000	2,211	79	193
MIDDLE ATLANTIC:					
New York	+	17,872,000	11,095	62	151
New Jersey	+	6,665,000	7,030	105	256
Pennsylvania	+	11,492,000	6,317	55	134
EAST NORTH CENTRAL:					
Ohio	-	10,151,000	4,855	48	117
Indiana	-	4,843,000	1,885	39	95
Illinois	-	10,545,000	5,274	50	122
Michigan	-	8,154,000	3,439	42	102
Wisconsin	-	4,110,000	1,652	40	98
WEST NORTH CENTRAL:					
Minnesota	-	3,525,000	1,734	49	120
Iowa	-	2,761,000	934	34	83
Missouri	-	4,473,000	1,470	33	80
North Dakota	-	650,000	143	22	54

Appendix C. (Cont.)

State	Gained (*) or lost (-) scientists	Total Population 7/1/64	Number of Scientists	Scientists per 100,000 Population 1964	Index (deviations from average of 100)
WEST NORTH CENTRAL: (Cont.)					
South Dakota	-	701,000	125	18	44
Nebraska	-	1,471,000	326	22	54
Kansas	-	2,227,000	578	26	63
SOUTH ATLANTIC:					
Delaware	+	496,000	1,450	29	71
Maryland	+	3,441,000	4,496	13	32
District of Columbia	+	795,000	4,125	52	49
Virginia	+	4,367,000	1,743	40	98
West Virginia	+	1,824,000	683	37	90
North Carolina	+	4,855,000	1,345	28	68
South Carolina	+	2,523,000	414	16	39
Georgia	+	4,295,000	762	18	44
Florida	+	5,651,000	1,470	26	63
EAST SOUTH CENTRAL:					
Kentucky	+	3,160,000	524	17	41
Tennessee	+	3,800,000	1,560	41	100
Alabama	+	3,426,000	865	25	61
Mississippi	+	2,298,000	260	11	27
WEST SOUTH CENTRAL:					
Arkansas	+	1,939,000	236	12	29
Louisiana	+	3,487,000	844	24	59

Appendix C. (Cont.)

State	Gained (*) or lost (-) scientists	Total Population 7/1/64	Number of Scientists	Scientists per 100,000 Population 1964	Index (deviations from average of 100)
WEST SOUTH CENTRAL: (Cont.)					
Oklahoma	+	2,461,000	1,053	43	105
Texas	+	10,391,000	3,368	32	78
MOUNTAIN:					
Montana	+	702,000	179	25	61
Idaho	+	688,000	282	41	100
Wyoming	+	338,000	150	44	107
Colorado	+	1,936,000	1,415	73	178
New Mexico	+	1,013,000	1,075	106	258
Arizona	+	1,550,000	650	42	102
Utah	+	973,000	529	54	132
Nevada	+	419,000	155	37	90
PACIFIC:					
Washington	+	2,967,000	1,589	54	132
Oregon	+	1,881,000	707	38	93
California	+	18,077,000	13,688	76	185
Alaska	+	250,000	161	64	156
Hawaii	+	708,000	276	39	93

*Source: Computed from data in Ralph E. Lapp, "Where the Brains Are," Fortune, March, 1966, pp. 154-156. Used by permission of Fortune.

Appendix D. Some recent Congressional enactments to strengthen education and fight poverty.

1. The Manpower Development and Training Act (1962) provides basically for training and retraining of unemployed and displaced adult workers.
2. Higher Education Facilities Act (1963) to provide public assistance to finance needed facilities in higher education.
3. The Economic Opportunity Act (1964) to mobilize the human and financial resources of the nation to combat poverty in the United States.
4. Civil Rights Act (1964) to abolish discrimination practiced against minority groups and especially Negroes and to provide equality of opportunity.
5. Elementary and Secondary Education Act (1965) to strengthen and improve the quality of educational opportunities in the nation's elementary and secondary schools. Particularly it is directed toward school districts of low financial resources.
6. Higher Education Act (1965) to strengthen the education resources of colleges and universities and to provide financial assistance to students in higher education.
7. Appalachian Regional Development Act (1965) to provide economic development programs for this depressed region.
8. Demonstration Cities and Metropolitan Development Act (1966) to provide standards for decent and wholesome urban living.

This list is not exhaustive but suggestive. Not since the Land Grant College Act of a hundred years ago (1862) has there been educational and human resource development and conservation legislation of anywhere near equal import. At the highest level of policy making these enactments demonstrate a profound awareness of urgent national problems.

THIRTY-FIFTH HONOR LECTURE DELIVERED AT THE UNIVERSITY

April 21, 1967

A basic objective of the Faculty Association of the Utah State University, in the words of its constitution, is:

> To encourage intellectual growth and development of its members by sponsoring and arranging for the publication of two annual faculty lectures in the fields of (a) the biological and exact sciences, including engineering, called the Annual Faculty Honor Lecture in the Natural Sciences, and (b) the humanities and social sciences, including education and business administration, called the Annual Faculty Honor Lecture in the Humanities.

The administration of the University is sympathetic with these aims and shares the cost of publishing and distributing these lectures.

Lecturers are chosen by a standing committee of the Faculty Association. Among the factors considered by the committee in choosing lecturers are, in the words of the constitution:

> (1) creative activity in the field of the proposed lecture; (2) publication of research through recognized channels in the field of the proposed lecture; (3) outstanding teaching over an extended period of years; (4) personal influence in developing the character of students.

Dr. Israelsen was selected by the committee to deliver the Annual Faculty Honor Lecture in the Humanities. On behalf of the members of the Association we are happy to present this paper:

NATIONAL GOALS AND HUMAN RESOURCES DEVELOPMENT

COMMITTEE ON FACULTY HONOR LECTURE

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by Willard Gardner

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